APPENDIX NOT INCLUDED

REMOVAL ACTION WORK PLAN

Falcon Refinery Superfund Site
Ingleside
San Patricio County, Texas
TXD 086 278 058

Prepared for

National Oil Recovery Corporation
3717 Bowne Street
Flushing, NY 11354

June 29, 2004

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AOC	Administrative Order on Consent
ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
API	American Petroleum Institute
AST	Above-ground Storage Tank
ASTM	American Society for Testing Materials
BNC	BNC Engineering, LLC
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CA	Corrective Action
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CID	Criminal Investigation Division
CRZ	Contaminant Reduction Zone
COC	Chain-of-Custody
EPA	Unites States Environmental Protection Agency
EZ	Exclusion Zone
FRC	Falcon Refining Company
HSP	Health and Safety Plan
mg/kg	Milligrams per kilogram
NCP	National Contingency Plan
NELAP	National Environmental Laboratory Accreditation Program
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NORCO	National Oil Recovery Corporation
NPL	National Priority List
OMS	Odorless Mineral Spirits
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
PC	Project Coordinator
QAPP	Quality Assurance Project Plan
QA/QCPP	Quality Assurance / Quality Control Project Plan
RA	Removal Action
RAW	Removal Action Work Plan

RI/FS	Remedial Investigation / Feasibility Study
RCRA	Resource Conservation and Recovery Act
RRC	Railroad Commission of Texas
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedures
SOW	Scope of Work
SZ	Support Zone
TACB	Texas Air Control Board
TCEQ	Texas Commission on Environmental Quality
TDH	Texas Department of Health
TNRCC	Texas Natural Resource Conservation Commission
TPH	Total Petroleum Hydrocarbons
TRRP	Texas Risk Reduction Program
ug/l	micrograms per liter

1.0 INTRODUCTION

This Removal Action will be directed by the *Administrative Order on Consent for Removal Action, CERCLA Docket No 06-04-04,* ("the Order") between the United States Environmental Protection Agency (EPA) and National Oil Recovery Corporation (NORCO). The Removal Action is primarily designed to remove and dispose of source materials currently at the site. To accomplish the source removal, demolition activities may also be required at the site. The three governing documents for this phase of work are:

- Removal Action Work Plan
- Quality Assurance/Quality Control Project Plan
- Health and Safety Plan

These documents should be considered "living documents" and if it becomes necessary all three will be modified to address any change in condition at the site.

The Removal Action Work Plan (RAW) provides a description of planned field activities that will be conducted during this removal phase of work. The RAW does not provide specific methodologies for demolition activities. After an asbestos survey and inventory of liquid and sludge has been completed, a plan will be developed with the selected demolition contractor to remove any above ground storage tanks, piping and related equipment.

The Quality Assurance/Quality Control Project Plan (QA/QCPP) has been developed to ensure quality assurance/quality control (QA/QC) during field sample collection and analytical testing associated with the cleanup activities. A field sampling plan is also included as an appendix to the QA/QC Project Plan. The plan details sample collection methodology and the QA/QCPP covers a variety of activities, including soil, water and waste sampling. This field sampling plan has been designed to be used during this removal action. Further sampling will be performed under the Remedial Investigation/Feasibility Study (RI/FS).

All sampling and laboratory analytical methods and procedures to be performed will conform to EPA direction, approval and guidance regarding sampling, quality assurance/quality control, data validation and chain of custody procedures. Analytical laboratories used for this project will be accredited under the National Environmental Laboratory Accreditation Program (NELAP) and will comply with appropriate EPA guidance.

The Health and Safety Plan (HSP) is designed to be used during this and future phases of work at the site including issues such as handling chemicals, working with construction equipment, selection of proper personal protection equipment, as well as outlining emergency response procedures. The HSP is designed to provide guidance to both site workers and any potential visitors.

1.1 Project Objective

The objective of this Removal Action Work Plan is to remove and dispose source materials from the property as well as remove hazards and risks related to the property. Removal Actions that will be conducted include:

- Asbestos assessment and possible abatement;
- Characterization of source materials;

- Assessment and removal or appropriate temporary storage of oil, hazardous substances and/or other pollutants of concern;
- Decontamination of containers, equipment, piping, and structures;
- Removal and disposal of containers, equipment, piping, and structures; and
- Removal and treatment or disposal of grossly contaminated soil.

1.2 Site Location and Description

The Falcon Refinery a.k.a. National Oil Recovery Corporation (NORCO) site (the "site") consists of a refinery that operated intermittently and is currently inactive. When in operation, the refinery, which was never operated by NORCO, had a capacity of 40,000 barrels per day and the primary products consisted of naphtha, jet fuel, kerosene, diesel, and fuel oil.

The site occupies approximately 104 acres in San Patricio County, Texas, and is located 1.7 miles southeast of State Highway 361 on FM 2725 at the northwest and southeast corners of FM 2725 and Bishop Road (Figure 1, Area Map). Another portion of the site includes a dock facility on Redfish Bay where materials were transferred between barges and storage tanks. The site is bordered by wetlands to the northeast and southeast, residential areas to the north and southwest and a construction company to the southwest.

The site (Figure 2, Site Map) has been owned, leased and/or operated under several different companies. The Oil and Gas Company of Texas, Inc. originally owned the site. A deed search revealed that the facility was leased to UNI Refining, Inc., from the UNI International Corporation and the UNI Pipeline, Inc., for seven years, 1979-1986. UNI Refining Co. obtained an air permit in 1979 and commenced construction of the facility in April 1980. In March 1981, UNI Oil, Inc., the parent corporation of UNI Refining Company and UNI Pipeline Company, was sold to new owners operating under the name of Texas Independent Oil Corporation. In late 1983 to early1984, the refinery was sold and operated under the name Mid Gulf Energy, Inc.

The Falcon Refining Company (FRC) purchased the site from Texas Independent Refining facility in November 1985. In 1986, production at the refinery once again ceased, Falcon Refining, Inc. declared bankruptcy and the facility came under the ownership of American Energy Leasing, Inc. In May 1990, Impexco of Texas, Inc. acquired the site from American Energy Leasing, Inc.

National Oil Recovery Corporation (NORCO) gained title to the refinery in December 1990 from Impexco of Texas, Inc. In June 1991, NORCO acquired the dock facility from the Sun Operating Limited Partnership. In the mid-90s, MJP Resources, Inc. began leasing/operating the tanks on the northwest corner of the FM 2725 and Bishop Road and the dock facility. In 1998, Pi Energy Corporation acquired 2.5 acres of the dock facility from NORCO.

Currently, Superior Oil Company is leasing several above-ground storage tanks and the docking facility, for crude oil storage and transportation.

1.3 Inspection History

The refinery processed material that consisted of not only crude oil but also contained hazardous substances as defined by 40 CFR Part 261.32. In a Notification of Hazardous Waste Activity, signed on October 20, 1980 by Mr. Eugene W. Hodge, Vice President of UNI Refining, Inc. four hazardous wastes from specific sources were listed; K048 (dissolved air flotation float), K049 (slop oil emulsion solids), K050 (heat exchanger bundle cleaning sludge), and K051(API separator sludge). Of these

sources, the listed hazardous waste K051, API separator sludge from the petroleum refining industry based on the toxicity of the sludge, was documented in an inspection report to have been deposited inside the walls of a tank berm. Other hazardous substances at the site include; vinyl acetate detected inside tanks during a EPA Criminal Investigation Division (CID) criminal investigation and a TNRCC Region 14 sampling event, the chromium detected in deposited cooling tower sludges and untreated wastewater release inside tank berms.

On March 12, 1986, an inspection conducted by the Texas Water Commission revealed that the Falcon Refinery had disposed of cooling tower sludges on-site. These sludges were sampled and revealed Total Chromium of 8020 mg/kg and EP Tox Chromium of 46 ug/kg. The inspector noted that, during December 1985, the Falcon Refinery made a 100,000 barrels run of slop oil which generated a substantial amount of very odorous wastewater. The refinery's wastewater treatment system was inoperable during this run. The refinery placed untreated wastewater in tankage and then, ultimately, discharged the untreated wastewater into sandy, unlined containment structures (fire walls). According to a 1986 inspection report, the untreated wastewater was discharged into the bermed areas around tanks 10, 11, 26, and 27. A sludge which had been dumped inside the fire walls of tank 13 was observed and sampled during the inspection of July 1986 by TNRCC Region 14 staff. Constituents found in the sample included naphthalene, 2,4-dimethylphenol, acenaphthene, fluorene, phenanthrene, fluoranthene, pyrene, and chrysene.

On January 13, 1987, TACB took a sample from a wastewater storage tank at Falcon Refining. Records indicate that the refinery received 104,000 barrels (bbl) of material from Tenneco in January 1986. A substantial amount of this waste remained in the pipelines and tanks. TACB officials noted that noxious odor complaints from surrounding residents began when the refinery started processing this material. TACB concluded that the Tenneco material was not virgin petroleum, but a mixture of organic solvents and, probably, waste. TACB analytical results from a sample of material taken from a tank on January 13, 1987 support the conclusion that this material contained constituents not normally occurring in crude oil Butanol, cyclohexanediol, 1 phenylethanol, N,N-diphenylamine, and xylene were detected in the sample of wastewater from the refinery.

An Inspection by the Texas Air Control Board (TACB) on April 10, 1987 revealed a black, liquid substance beneath a pipeline rack on the north side of the refinery from a leak in the third pipeline (10-inch diameter) from Bishop Road. The black, liquid appeared to be either a solvent with hydrocarbon/carbon or a crude oil with solvents intermixed. The pipeline connects the tank farm in the refinery to a run-of-pipe from the docks which were used to transfer material into and out of the Falcon Refinery tank farm. The final spill covered an area approximately 30 feet by 60 feet. Investigations on April 20 and 21, 1987 did not indicate any apparent effort to remove the spilled material, which was creating an odor problem. ARM Refining, located on the west side of FM 2725 and on the north side of Bishop Road, covered the spill on April 22, 1987.

On November 15, 1995, a spill was reported south-southeast of FM 2725 on Bishop Road, in the wetlands adjacent to the Brown & Root Facility. The spill occurred during an hydrostatic test of a pipeline prior to bringing the line back into service. The underground pipeline runs from the dock facility to the main facility. Approximately less than eight barrels of "crude oil" were spilled. According to Mr. Bernie Eickel of the Railroad Commission of Texas (RRC), the sample analyses on February 7, 1996 indicated the presence of substances other than crude oil. Two contaminated soil piles and two roll-off containers containing regulated waste associated with the spill resulted from the waste removal activity. Analyses of the February 7, 1996 samples (collected from one roll-off and liquid material leaking from the roll-off) indicated constituents not normally found in crude oil and

elevated levels of the following constituents: tetrachloroethene, 2-methylnapthalene, phenanthrene, toluene, and total xylenes.

On February 16 and 19, 1996, an inspection was conducted by the TNRCC Region 14 staff at the NORCO facility in response to an alleged crude oil pipeline spill from the facility on November 15, 1995. Analysis of the spilled residuals revealed constituents not naturally occurring in crude oil. Mercury, lead, 1,2, dichloroethane, benzene, ethyl benzene, styrene, toluene, total xylenes, chrysene, m-creosol, o-creosol, p-creosol, fluorene, methyl isobutyl ketone, 2-methylnaphthalene, naphthalene, phenanthrene, pyrene, methyl t-butyl ether, total organic halogens, and vinyl acetate were detected in the samples collected. Vinyl acetate was detected in tanks N1 and N2. Vinyl acetate is not an ingredient in crude oil nor does it substitute for other products as it has no solvent properties, thus exempting the chemical from the petroleum exclusion.

On April 4, 1996, Jones & Neuse conducted grid sampling at the spill site. The samples were analyzed for benzene, toluene, ethyl benzene, and xylene (BTEX) and total petroleum hydrocarbons (TPH). No BTEX content was detected in the soil samples taken, but TPH levels were detected ranging from 67 to 1930 mg/kg.

The EPA CID of the Houston Area Office conducted a criminal investigation from January 1996 until August 2000 on the activities at Gulf Conservation Corporation (GCC), a facility located north of the dock facility, at the NORCO facility which was being operated by MJP Resources, Inc. Specifically the investigation concerned a vinyl acetate slop stream delivered to GCC. According to Mr. Ronald Cady, Louisiana Department of Environmental Quality Regional Hazardous Waste Coordinator, and Mr. Brian Lynch, CID, this stream consisted of odorless mineral spirits (OMS) that were used as a carrier for the reactant in the production of polyethylene at Westlake Polymers in Sulphur, Louisiana. In this process, the mineral spirits are recycled until they become too contaminated to use and would be classed as a spent solvent. Westlake Polymers segregates the two streams and labels them V-240 (OMS) and V-242 (OMS with VA). In the past they had been classifying the mineral spirits as a co-product. The vinyl acetate is not an excluded substance under the petroleum exclusion.

Samples were collected by the CID in February 1996 from the two tanks (N1 and N2, also referred to as 32 and 33) in the main processing area of the NORCO facility. The liquid samples collected revealed high concentrations of vinyl acetate in two tanks; 1,360,000 ug/L and 36,600,000 ug/L.

On January 4, 2000, TNRCC Region 14 inspectors completed a compliance inspection pertaining to the air quality requirements for permitted tanks. These tanks are located on the northwest quadrant of the FM 2725 and Bishop Road and are authorized in three active TNRCC air permits. The naphtha stabilizer unit, located in the main processing area in the southeast quadrant of FM 2725 and Bishop Road, was observed to be leaking from a valve between the sight glass and the tank. This valve was approximately 20 feet high and the wind was blowing a shower of leaking fluid on to an area of soil and vegetation surrounding the tank. Two 8-ounce jars of sample were collected of the liquid as it leaked from the valve. Based upon the flow rate of the leak observed on January 7, 2000, and the site inspections conducted on January 4, 6, 7, 10, and 11, 2000, it was determined by the TNRCC Region Office that a total volume of at least 220 gallons of material had leaked from the tank.

Groundwater at the NORCO facility has been contaminated as a result of the release, per the March 7, 2000 report. Laboratory analyses received by the TNRCC Region 14 Office on February 25, 2000 revealed the following constituents; 1,2 dichloroethane, 4-methyl-2-pentanone (Ref. 38, p. 180), benzene, ethyl benzene, m,p,oxylenes, styrene, and toluene (Ref. 38, pp. 44-50). The analyses also

revealed that the fluid sample exceeded the maximum concentration of benzene for toxicity characteristic using the TCLP.

The hazardous substances identified on-site included such chemicals as nitric acid, acetic acid, cupric chloride, potassium chromate, silver nitrate and potassium hydroxide. Additionally, the EPA believes that hazardous wastes and residues identified by the RCRA waste numbers D002, K049 and K051 are also present. All of the hazardous wastes and substances are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and CFR § 302.4. The US EPA estimated that approximately 30,000 gallons of hazardous substances were present.

1.4 Regulatory Framework

This project is regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). An Administrative Order on Consent for Removal Action (CERCLA Docket No**.** 06-04-04) has been entered into between the US EPA and NORCO. Although the site is considered a CERCLA site it is not on the National Priority List (NPL).

1.5 Project Organization

The project organizational structure for this removal action is presented on Figure 3. The US EPA has designated Mr. Gary Moore of the Emergency Response and Prevention Branch, Region VI as the On-Scene Coordinator (OSC). Mr. Moore is the lead EPA representative for the site and serves as a central contact point and has the authority to halt, conduct, and direct the work at this Site under the Administrative Order.

The Project Coordinator (PC) for this site is Stephen Halasz with BNC Engineering, LLC (BNC). Mr. Halasz is responsible for administration of all actions required under the Administrative Order with the approval of Richard Bergner, the NORCO representative. The Project Engineering Team, which includes Jim Blackwell (PE), Dustin Goss (PE) and Russell Storm-Olsen (EIT), will be responsible for all engineering aspects of the project including the design and development of construction drawings. Steve McCollough will be the On-site Construction Manager, Richard Jennings is the Safety Coordinator, Theresa Nix is the On-Site QA/QC Manager and Olga McDonald is the Laboratory QA/QC manager.

BNC will serve as the primary contractor and will provide technical assistance and oversight in the field for the duration of the removal action. Selected removal action contractors will report directly to Mr. Halasz.

1.6 Regulatory Agency Notifications

Prior to initiation of site work related to this Removal Action Work Plan various regulatory notifications will be required. Notifications will include:

- US Environmental Protection Agency (US EPA)
  After the Removal Action Work Plan is approved, the project coordinator (PC) will notify the US EPA five working days prior to the start of site activities. The PC will also notify US EPA of the selected remedial contractor(s) at least 15 days prior to the commencement of the removal action.
- Texas Department of Health (TDH)

TDH will be notified ten days prior to the start of any potential asbestos abatement activities.

- Ingleside City Manager

  As a courtesy the City Manager for the Town of Ingleside will be notified one week prior to the start of removal actions.

2.0 DATA MANAGEMENT

Data management for this removal action will consist of documenting site activities by use of a field log book, daily work logs, site photographs, and sample chain of custody forms. Use of these documents will assist in documenting and tracking data collected in the field during removal actions. Additional guidance is provided in Section 4 of the Field Sampling Plan (Appendix A of the QA/QC Project Plan). Sample documentation and field forms collected during this project will ultimately be stored in the project files at BNC, in Georgetown, Texas. Stephen Halasz will be the file custodian. Project files will be stored in an organized and accessible manner. At the completion of this removal action, a Removal Action Completion Report will be developed that provides a summary of methodologies used, a tracking of waste disposal/recycling operations and documents project details and activities.

2.1 Field Log Book

During field activities, it will be necessary for the project field staff to record site specific data from sampling activities, demolition actions, etc. These data will be recorded in project field log books dedicated to the project. The field log books will be bound, sturdy, of water repellant construction, with numbered pages and entries will be in indelible ink. Each field book will be assigned by the Project Coordinator to a team member and identified by a site specific title. The assignment of the field book and its identifier will be recorded in the Daily Work Logs. Upon filling a field book or completion of the project, the book will be turned over to the file custodian and stored at the BNC offices in Georgetown, Texas.

2.2 Daily Work Log

In addition to the project field log book that serves as the primary project documentation tool, daily activities will be initially documented on daily work logs. One daily work log will be completed for each day of site activities and will document items such as:

- personnel on-site and the company or agency they represent
- start and completion time for site activities
- detailed summary of activities conducted
- problems and resolutions
- deviations from the work plan, and
- weather conditions

On a weekly basis, copies of the previous week's daily work logs will be sent or delivered to the BNC Project Coordinator.

2.3 Site Photographs

To the extent practical, photographic documentation will be maintained of the removal action. This may include digital and conventional film photography. Photographic documentation will provide a historical reference of actual site activities. Documentation of each photograph will include the date taken, time of day, location and direction of the photograph and will be recorded by field personnel in the field log book. Photographic images will be transmitted weekly to the BNC PC.

2.4 Sample Chain of Custody Forms

All collected samples will be documented on sample chain of custody forms. The forms will be provided by the analytical laboratory that will be analyzing the sample. The chain of custody will identify the time and date of sample collection, provide unique sample identification, list the person collecting the sample, type of container, preservative, analysis requested, detailed project data, and any other relevant data. The chain of custody forms will be completed in triplicate with one being retained prior to sample shipment and the other two copies being shipped with the samples to the laboratory. Copies of the chain of custodies will be maintained by the PC.

3.0 REMOVAL ACTION SCOPE OF WORK

This section provides the rationale and sequence of tasks for the RA as designated in the AOC. BNC will direct and oversee activities on behalf of NORCO during the implementation of the RA, including data collection and management and construction oversight. The Project Coordinator designated in the AOC will provide project management and coordination between NORCO and the EPA.

The EPA will be notified of the name and qualifications of proposed contractors at least five business days prior to the contractor beginning activities. Each contractor will be provided copies of the Removal Action Order, HSP and the RA work plan.

Following review of the Work Plan by the EPA the following activities may be performed:

- Locating utilities;
- Providing site security;
- Mobilization of construction facilities, site office and personnel;
- Site preparation including;
    - Emergency first aid facility,
    - Construction of decontamination facilities,
    - Provision of utilities,
    - Clearing and grubbing of existing vegetation,
    - Work zone identification, and
    - Construction of temporary staging areas
- Implementation of the Health and Safety Plan,
- Asbestos assessment,
- Asbestos abatement,
- Fugitive air monitoring,
- Ambient air monitoring,
- Soil excavation, handling and backfilling,
- Above-ground storage tank gauging and sampling,
- Decontamination, demolition and removal of tanks and equipment,
- Restoration of excavation areas,

- Management of waste, and
- Demobilization of construction facilities and equipment from the site.

These tasks will be discussed in detail.

3.1 Locating Utilities

To reduce the likelihood of encountering utility lines during removal actions, especially demolition and excavation activities, a utility locating service will be used to identify, locate and mark utility lines that cross the property.

3.2 Providing Site Security

A perimeter fence is in place around the entire facility to ensure that only appropriate personnel have access to the site. BNC will be responsible for maintaining security at all times during RA construction activities.

Access gates will be closed to prevent uncontrolled access to the site. During soil and liquid waste handling the following actions will be in effect:

- Limited vehicular access;
- Initial screening of all site personnel and visitors;
- A security log including dates, names, addresses, companies, time in and time out for all employees and visitors will be maintained; and
- Warning signs will be posted.

3.3 Construction Support Facilities

The following sections describe the required construction support facilities for the site activities. Anticipated dates for the plan are depicted on Figure 4.

3.3.1 Site Office

A project trailer will be in place at the Falcon Refinery for use as the on site project office by BNC and EPA personnel.

3.3.2 Emergency First-Aid Facility

BNC will supply and maintain a first-aid facility, which complies with the requirements of 29 CFR 1910.141, during the RA.

3.3.3 Fire Suppression Equipment

BNC will provide necessary fire suppression equipment to ensure the safety of site personnel. Details of the fire suppression equipment are provided in the HSP (APPENDIX A). Coordination will be established with the local fire department.

3.3.4 Decontamination Facilities

Prior to working in any exclusion zone (EZ), BNC will supply and operate a personnel hygiene/decontamination facility that complies with 29 CFR 1910.141.

Wastewater from the personnel hygiene/decontamination facility will be pumped to the designated storage tank. Prior to any approved discharge of wastewater appropriate sampling will be performed.

3.3.5 Equipment Decontamination Facility

BNC will supply and operate an equipment decontamination facility with sufficient pumping equipment and piping to pump wastewater from the decontamination pad to the wastewater storage tank for treatment and possible disposal.

All equipment leaving the EZ will be decontaminated on the decontamination pad using a high-pressure, low-volume hot water and non-phosphate detergent (or equivalent), if necessary, and will be inspected by BNC prior to entering the support zone (SZ). Sediments collected on the decontamination pad will be characterized for either disposal off-site at an appropriate commercial facility or staged on-site.

In highly contaminated areas a contaminant reduction zone (CRZ) will be established at the interface of the EZ and the SZ and will provide access for the transfer of construction materials and equipment.

3.3.6 Portable Sanitary Facilities

Portable toilet facilities will be provided and maintained by BNC in an area outside the EZ. Sanitary waste will be removed and disposed off-site on a periodic basis in accordance with applicable laws and regulations.

3.3.7 Cleaning and Grubbing

Areas required for construction access will be cleared to the extent required to implement the RA. Cleared vegetation will be removed or chipped on-site and used to support site restoration activities.

Also, vegetation will be cleared near the perimeter of the property to establish a fire break line around the property.

3.4 Health and Safety Plan

A health and safety plan (HSP) that meets the requirements of OSHA Standards and Regulations contained in Title 29, CFR 1910 and 1926 has been developed for the site (Appendix A) The developed HSP includes EPA guidance documents regarding procedures to insure safe operations at sites containing hazardous or toxic materials.

Each contractor involved in RA construction activities at the site will be required to abide by the HSP. The following items are covered in the HSP:

- Medical surveillance;
- Worker training;
- Site Safety Officer designation and responsibility;

- Work area designations;
- Personnel and equipment usage;
- Air monitoring programs;
- Personnel protective equipment to be used;
- Respirator protection program and procedures;
- Emergency first-aid equipment;
- Safety meetings;
- Confined space entry;
- Site communications; and
- Site security.

The HSP will be maintained at the site at all times during the performance of the RA and will be made available to site personnel and visitors that are permitted to enter the site. Also included is the emergency response plan, which includes:

- Injury to on-site personnel;
- Fire procedures;
- Leak or release of toxic materials;
- Severe weather;
- Utility breakage; and
- Detecting vapors.

3.5 Asbestos Assessment

Prior to the initiation of any demolition activities an asbestos assessment will be conducted of possible asbestos containing materials (ACM). The ACM survey will be conducted by a yet to be determined contractor that will conduct the survey in accordance with the National Emissions Standards for Hazardous Air Pollutants (NESHAPS), the EPA's Asbestos Hazard Emergency Response Act (AHERA) and the Occupational Safety and Health Administration (OSHA).

To perform the survey a thorough inspection will be made of all buildings, insulation and other possible ACM. Any homogenous samples containing ACM will be determined and classified. These homogenous samples will be determined by the same color, texture and size. The following guidelines will be used:

- For surface materials the 3-5-7 Rule will be used which requires that a minimum of three samples be collected for materials encompassing less that 1,000 square feet, a minimum of five samples for materials encompassing between 1,000 and 5,000 square feet and a minimum of seven samples for materials encompassing greater than 5,000 square feet.
- For thermal system insulation (TSI) a minimum of three samples per homogenous area will be collected. No samples will be collected if the accredited inspector determines that the TSI is fiberglass, foam, rubber or other non-ACM.
- AHERA and OSHA requirements for miscellaneous materials will be used.

Quantification of ACM's will be used to determine if NESHAPS and OSHA notifications are required. Surface materials will be listed in square feet and TSI will be listed in linear feet. The location of each sample collected will be done in a statistically reliable manner that is representative of the homogenous area.

The following sampling procedures will be used as needed:

- Unique sample numbers will be used and the containers will be labeled with the location, date, sample number and material sample.
- The location will be marked on a diagram.
- Polyethelene dropcloths will be placed below the areas to be sampled.
- Appropriate PPE will be used.
- The area will be sprayed with water.
- Representative sized samples will be obtained with appropriate tools.
- Tools will be cleaned with wet wipes or a HEPA vacuum.
- The sample hole will be sealed with duct tape or patching compound.
- All PPE will be cleaned.
- The respirator will be decontaminated with soap and water and any wipes used will be placed in a disposal bag.
- All samples will be transported to a laboratory that is accredited by the National Voluntary Lab Accreditation Program (NVLAP). The samples will be analyzed by polarized light microscopy as described in Appendix A, of 40 CFR part 763, Subpart F.

ACM will be classified as either friable asbestos or non-friable asbestos and the following actions will be utilized:

- Friable asbestos or asbestos that will become friable during demolition will be disposed of as asbestos hazardous waste. These wastes are classified by NESHAPS as RACM and Category II non-friable. A waste manifest form will be completed that documents the site, responsible party and the transporter.
- Non-Friable ACM can be disposed of as non-hazardous asbestos waste.

Before asbestos abatement work is initiated, if any, a structure-by-structure evaluation will be completed assessing the structural integrity of the objects that are known to contain ACM prior to abatement. If it is determined that removal of the ACM would be unsafe and endanger workers, a request will be submitted to the TDH to condemn the structures and potentially demolish them as is. Also as part of any necessary asbestos abatement, an on-site air quality monitoring station may be installed to monitor air quality before, during and after abatement activities. A consultant independent of the contractor conducting the asbestos abatement will monitor air quality during the work to obtain baseline information and final clearance for all asbestos related work.

3.6 Assessment and Removal of Hazardous Substances and Other Pollutants

Previous site investigations conducted by US EPA, Texas Commission on Environmental Quality (TCEQ) and contractors have identified above ground storage tanks, containers and drums that may contain hazardous waste. The quantity of hazardous and non-hazardous material at the site is unknown.

The initial waste characterization will include testing for items such as flammability, pH, reactivity to sulfide and cyanide; as well as visual observations including physical state, color, clarity and density. Testing will be performed to identify the hazard class (if the material is determined to be hazardous) and volume of material. Actual waste management practices for these substances will be determined

by additional waste characterization and analytical testing. Based on the results of the sampling and volume determination a disposal option will be selected and provided to the EPA.

During the sampling of the tanks safety precautions described in the HSP will be employed, including the possible use of scaffolding or mechanical devices to lift personnel to the top of the tanks that are in poor condition.

Sampling of the liquids will utilize methods described in the field sampling plan.

In addition to determining the volume of liquid in the tanks and the waste characterization, BNC proposes to perform a Flowers Compatibility Study to determine if a majority of the liquids found in the above-ground storage tanks can be transferred to one above-ground storage tank. In addition to complying with the HSP the following procedures would be followed:

3.6.1 Flowers Compatibility Study Field Sampling

- Collect 3 samples (8 oz/250 ml) from each tank: top/middle/bottom
- The "Top" sample shall be collected from below the surface down to a depth of no more than 2 feet.
- The "Middle" sample shall be collected from the approximate mid-point of the liquid level in the tank.
- The "Bottom" sample will be collected from the bottom 2 feet of the tank.
- The percentages of any material phase in the tank will not be determined.
- Note tank levels whenever possible and estimate liquid volume of each tank.

3.6.2 Lab Evaluation and Sample Consolidation

- Determine, by visual comparison of the three individual tank samples, whether the tank contents are multi-phasic (oil/organics/aqueous)
- Note visual characteristics of each sample.
- Consolidate samples, i.e. prepare individual tank composite samples wherever possible by combining all samples of similar phases and apparent composition.
- Note any reactions or other anomalies when consolidating tank samples.
- Measure pH of each remaining sample
- Optionally, on a case by case basis, check reactivity and ignitability

3.6.3 Mixing Tests

- Equilibrate all samples to room temperature
- Split samples into three equal fractions

3.6.4 Phase 1: Intra-Tank Reactivity

- Systematically combine the Fraction 1 samples collected from the same tank to check for intra-tank component reactivity that might occur during transfer
- Monitor the temperature of the samples before and after mixing and note any significant temperature change.
- Check for the generation of any gas bubbles in the liquid.

- Seal jar and let stand overnight.
- After sample has settled, mark the level of any phase separations and note the sample's physical characteristics (color, odor, etc).
- Check for evidence of gas evolution (jar pressurized?).
- If there are no apparent reactions from the mixing of the intra-tank samples, then proceed to next phase.

3.6.5 Phase 2

- If a reaction is evident after the addition of any tank sample, that tank sample will be identified and the remaining fractions used for additional tests.
- If a reaction is evident only after the samples have set overnight, identify the tank sample for additional evaluation.

3.6.6 Phase 2: Inter-Tank Reactivity

- Systematically mix the combined tank samples together, one by one, noting any measurable temperature changes, or other visible signs of reaction after each addition.
- Seal jar and let stand overnight.
- After sample has settled, mark the level of any phase separations and note the sample's physical characteristics (color, odor, etc).
- Check for evidence of gas evolution (jar pressurized?).
- If a reaction is evident after the addition of any tank sample, that tank sample will be identified and the remaining fractions of that tank used for additional tests.
- If a reaction is evident only after the sample has set overnight, a more comprehensive test matrix may be required to isolate the tank(s) responsible for the reaction.
- If no apparent reaction occurs as a result of the consolidation of all tank samples, then no additional tests will be required.

3.6.7 Phase 3: Identification and Characterization of Reactive Tank Samples (if necessary)

- Assess data for any tank samples that are identified as reactive and either recommend isolation or develop alternative plans.
- Assess data and develop a test matrix to determine tank samples responsible for reacting with one another.
- Using remaining sample fractions, prepare a comprehensive test matrix based on those samples already mixed when reactions were noted.

Results of the initial liquid volume determination and the AST sampling may indicate that further sampling for waste characterization is necessary and an amended work plan will be developed.

3.7 Affected Soil

Areas have been identified as containing visually affected soil resulting from historical spills, past operations, accidents and deteriorating equipment near the main refinery area and near numerous aboveground storage tanks (ASTs). Areas described in section 1.2 of this work plan will be evaluated and a site walk through will be conducted to determine if additional areas of affected soil are present on-site.

Surface soil that appears grossly contaminated will be excavated and characterized prior to off-site disposal, on-site treatment or recycling. Excavation of affected soil will be conducted with the appropriate type of construction excavation equipment. The depth and extent of any excavation will be directed by observations in the field. During this removal action, when grossly contaminated soil is encountered at a depth greater than five feet below ground surface, a determination will be made to either stop the excavation or continue. A depth of five feet is selected based on guidance set forth in the Texas Risk Reduction Program (TRRP), a risk-based corrective action program, which is often used in evaluating affected properties within the State of Texas. For sites classified as commercial/industrial properties, soil from the surface to five feet below ground surface is classified as surface soil and soil below five feet in depth are classified as sub-surface soils.

If excavations are backfilled as part of this action, backfilling will consist of placing material meeting all regulatory requirements in eight to 12-inch lifts or as deemed appropriate at the site. The lifts may be rolled, compacted and moisture added as necessary to ensure 90% compaction as to meet ASTM compaction standards.

Excavations completed during this removal action are not designed to remove all affected soil, only grossly affected surface soil. A detailed site investigation into soil quality will be conducted after the completion of this initial removal phase of grossly affected soil. At that time the vertical and horizontal extent of affected soil will be determined and an evaluation will be conducted to determine if additional response actions are necessary.

3.8 Tank Bottoms and Liquids

Previous EPA site investigation/characterizations identified liquid, sludge and solids within the ASTs. Removal of liquids and tank bottoms will be conducted prior to the demolition of any ASTs and other equipment. Materials will be characterized prior to determining the appropriate method of treatment, disposal or reuse. Some materials may be listed as hazardous wastes and will be handled as hazardous waste; other material may be classified as non-hazardous and may be recycled.

3.9 Decontamination and Demolition of On-site Vessels, Piping and Structures

Above and below ground structures as well as site debris may be removed from the site. Major concern during this removal action will be the protection of site workers, adjoining neighborhood areas and the environment in general. Each structure will be decontaminated prior to demolition and removal. Site equipment, structures and miscellaneous piping will be emptied, cleaned, gas freed and deenergized prior to demolition. Also all ACM and suspect insulation will be removed from the structures before dismantling. The following is an example ordering of removal/demolition activities:

1. removal/demolition of ASTs
2. removal of piping (underground/overhead)
3. slab removal

Actual ordering will be determined with the assistance of the remedial/demolition contractor and detailed in a Demolition Action Plan. The selected demolition contractor will develop a written Demolition Action Plan that outlines specific methodology, procedures, and scheduling for each building, AST, sump and structure. Any demolition plan shall also include:

- Any necessary addendums to the site-specific safety and health plan relating to demolition/decommissioning steps to ensure site worker protection.
- A fire protection and prevention plan that details fire prevention and safety equipment and staff that will be on-site to respond to any emergencies that arise, including the location of dry powder type fire extinguishers, pressurized fire house connection locations and fire hoses.
- The contractor's proposed permit system to ensure safety, confined space entry, fire protection, and regulatory compliance.
- A schedule/time line for conducting site activities.
- A step-by-step methodology of pre-demolition procedures and equipment needed for inspection, gas-freeing, ventilation, combustible and explosive vapor monitoring as applied to all equipment and structures to be dismantled. Explosive and oxygen deficient atmospheres are likely to be encountered during demolition, especially in piping, sumps and ASTs. Also because of the high likelihood of structural instability during dismantling structures due to deterioration, especially the ASTs, all structures are to be inspected before demolition.
- A step-by-step methodology of demolition procedures and equipment.
- A listing of all subcontractors that will be involved in site work.

All products (liquid and solids) shall be emptied from the items to be demolished. If tanks containing solidified asphalt are scheduled to be dismantled before asphalt removal, the contractor shall perform complete water flooding of the asphalt surface before hot work in connection with dismantling is allowed. Dust generation will be reduced and suppressed as much as practical. Items that can be recycled or salvaged shall be carefully removed, segregated and protected before demolition.

3.10 Restoration of Property

After all tasks associated with this removal action have been completed, site restoration activities will be performed. Included will be backfilling and re-grading the property to optimize drainage and stormwater runoff patterns, a reseeding program may be initiated to control erosion, minimize dust and promote re-vegetation. Seed selection will be based on plant species endemic to the area.

4.0 REPORTING

Weekly construction meetings will be conducted at the site during active removal activities. Participants will include the BNC site health and safety officer, the on site project manager and contractors. Meetings may also include NORCO and EPA personnel.

4.1 Progress Reports

Progress reports will be submitted monthly on the 10th day of the following month to document the progress of the work as required under the AOC. Progress reports, which will be submitted until the termination of field activities will include:

- Descriptions of all significant developments during the previous month;
- Descriptions of work and problems encountered;
- Summaries of daily activities;
- Analytical data; and
- Anticipated activities for the upcoming month.

4.2 Final Report

Within 90 days of the completion of removal actions NORCO will provide a draft final report that details the actions taken. The report will comply with the requirements in Section 300.165 of the NCP. Included in the report will be:

- A listing of quantities and types of materials removed off-site or handled on-site;
- A discussion of removal and disposal options considered for the materials;
- A listing of the ultimate destinations of the materials;
- A presentation of the analytical results; and
- Accompanying appendices containing all relevant documentation generated during removal actions.

5.0 PROJECT SCHEDULE

Figure 4 provides an anticipated project schedule showing milestones and deliverables that relate to this removal action. The schedule is based on currently known information and estimates for specific tasks. If known information changes or if review time for submittals is longer than estimated, the dates in the schedule will not be accurate. The project start date will be based on US EPA approval of this work plan. Assuming that approval of the RAW is received on August 13, 2004, the proposed start date for substantial field activities relating to this removal action will be August 27, 2004. Prior to that time activities consisting of securing the site and installing a work trailer may be performed.